



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:

OSB2001-0137-FEC

August 7, 2001

Colonel Richard Wagenaar
U.S. Army Corps of Engineers
Walla Walla District
201 North 3rd Avenue
Walla Walla, Washington 99362-1876

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for the Effects of Completion of Nursery Bridge Dam
Vertical Slot Fish Ladder, Walla Walla River, Umatilla County, Oregon
(Corps No. 096083)

Dear Colonel Wagenaar:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed completion of Nursery Bridge Dam Vertical Fish Ladder on the Walla Walla River in Umatilla County, Oregon. In this Opinion, NMFS concluded that the proposed action is not likely to jeopardize the continued existence of ESA-listed Middle Columbia River (MCR) steelhead, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with nondiscretionary terms and conditions that NMFS believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on Essential Fish Habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Liz Ellis of my staff in the Oregon Habitat Branch at (541) 962-8607.

Sincerely,

Donna Darm
Acting Regional Administrator

cc: Chris Hyland (COE)
Michelle Eames (USFWS)
Tim Bailey (ODFW)
Jed Volkman (CTUIR)
Brent Stevenson (Walla Walla Irrigation district)
Mary Headley (COE)

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Completion of Nursery Bridge Dam Vertical Slot Fish Ladder at
River Mile 51.9, Walla Walla River, Milton-Freewater, Oregon
(Corps No.096083)

Agency: U.S. Army Corps of Engineers, Walla Walla District

Consultation conducted by: National Marine Fisheries Service, Northwest Region

Date Issued: August 7, 2001

Refer to: OSB2001-0137-FEC

TABLE OF CONTENTS

1. ENDANGERED SPECIES ACT	<u>1</u>
1.1 Background	<u>1</u>
1.2 Proposed Action	<u>2</u>
1.3 Biological Information and Critical Habitat	<u>5</u>
1.4 Evaluating Proposed Actions	<u>5</u>
1.4.1 Biological Requirements	<u>6</u>
1.4.2 Environmental Baseline	<u>7</u>
1.5 Analysis of Effects	<u>8</u>
1.5.1 Effects of Proposed Actions	<u>8</u>
1.5.2 Effects on Critical Habitat	<u>10</u>
1.5.3 Cumulative Effects	<u>10</u>
1.6 Conclusion	<u>11</u>
1.7 Reinitiation of Consultation	<u>12</u>
2. INCIDENTAL TAKE STATEMENT	<u>12</u>
2.1 Amount or Extent of the Take	<u>13</u>
2.2 Effects of the Take	<u>13</u>
2.3 Reasonable and Prudent Measures	<u>13</u>
2.4 Terms and Conditions	<u>14</u>
3. MAGNUSON-STEVENSON ACT	<u>19</u>
3.1 Background	<u>19</u>
3.2 Magnuson-Stevens Fishery Conservation and Management Act	<u>19</u>
3.3 Identification of Freshwater Essential Fish Habitat	<u>20</u>
3.4 Proposed Actions	<u>20</u>
3.5 Effects of Proposed Actions	<u>20</u>
3.6 Conclusion	<u>21</u>
3.7 EFH Conservation Recommendations	<u>21</u>
3.8 Statutory Response Requirement	<u>21</u>
3.9 Consultation Renewal	<u>21</u>
4. LITERATURE CITED	<u>21</u>

1. ENDANGERED SPECIES ACT

1.1 Background

In a letter dated May 24, 2001, the U.S. Army Corps of Engineers (COE), Walla Walla District, requested initiation of informal consultation under Section 7 of the Endangered Species Act (ESA) regarding the potential effects of completion of the Nursery Bridge Dam vertical slot fish ladder on Middle Columbia River (MCR) steelhead, (*Oncorhynchus mykiss*) and their designated critical habitat. The referenced biological assessment (BA) provided by the COE describes the action in detail and concludes that the proposed action is not likely to adversely affect (NLAA) MCR steelhead (COE 2001). The COE's request for consultation did not address chinook salmon (*O. tshawytscha*). Although chinook salmon are not present in the project area, the project is within their Essential Fish Habitat (EFH). After further discussion and analysis, the National Marine Fisheries Service (NMFS) and the COE concluded that formal consultation was necessary because of rearing MCR steelhead and the necessity of salvage operations during brief in-water work. The project is at River Mile (RM) 51.9 of the Walla Walla River, a tributary to the Columbia River.

The MCR steelhead was listed as threatened under the ESA by NMFS on March 25, 1999 (64 FR 14517). The NMFS designated critical habitat for MCR steelhead on February 16, 2000 (65 FR 7764) and applied protective regulations to MCR steelhead under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this biological opinion (Opinion) is to determine whether the proposed action is likely to jeopardize the continued existence of the MCR steelhead, or result in the destruction or adverse modification of designated critical habitat.

The NMFS has reviewed the following information to reach its determination and prepare this Opinion:

- The action agency's biological assessment;
- background information gathered from the United States Fish and Wildlife Service (USFWS) Section 10 applications and permits for the years 2000 and 2001;
- fish salvage operation notes documented by the Oregon Department of Fish and Wildlife (ODFW);
- relevant telephone, fax, and electronic communications;
- notes from a site visit to the Nursery Bridge Dam on June 25, 2001; and
- reference materials (see Section 4.0).

1.2 Proposed Action

Under the proposed action, the COE would complete a new vertical slot fish ladder at the Nursery Bridge Dam, on the Walla Walla River at River Mile (RM) 51.9, in the city of Milton-Freewater, Oregon. The work would occur during the in-water work window, July 1- October 31. Repairs to eroding concrete spillways include rebar and riprap work.

At present, low flows at the Nursery Bridge Dam collect in channels along the west bank and along the east bank, leaving a dry island in the center. The original fish ladder is located near the west bank and the new fish ladder is located near the east bank. To reduce the likelihood of stranding fish during low flow periods, flows must be redirected toward the new ladder.

The proposed action will complete a three-phase project. Phase one work involved the construction of a new vertical slot fish ladder on the east bank of the river and the creation of a counting facility. The new vertical slot fish ladder was completed during summer 2000. Phase 2 and 3 include modifications and structured repairs to the upper spillway and lower endsill crests and reshaping existing stream bottom gravel materials to direct minimum water flows toward the new fish ladder entrance, respectively. The second phase will require temporary dewatering of the west channel section during the in-water work period (July 1 - October 31).

Dewatering will be accomplished using a 3-4 foot high berm placed at an angle from the east bank to the west bank. This will dewater the westside channel construction zone and form a pool with enough water depth to allow the new vertical slot ladder to function properly. The gravel berm will erode as flow increases during the fall season rains, long after the proposed project is expected to be completed.

Modifications and structural repairs to sections of the upper spillway crest and lower endsill crest (on the west side of the dam, opposite of the new fish ladder) are required to ensure future optimal flow characteristics toward the new fish ladder during low flow conditions and downstream without scouring.

The Nursery Bridge Dam (Dam) is approximately four miles upstream of the Oregon/Washington state line, at RM 51.9, on the Walla Walla River. The Dam is a focal point for collecting information on fish species, including MCR steelhead and nonlisted chinook salmon. Since 1993, adult MCR steelhead returning to the Oregon portion of the Walla Walla River have been counted by direct observation/handling at the Dam adult trapping facility (ODFW 2001). The Dam has also been a barrier to fish passage since its construction in 1952. The COE constructed a fish ladder on the west bank in 1966-67. However, the river channel changed significantly after construction, and a five-foot differential exists between the streambed and the top of the stilling basin endsill (a concrete rise at the downstream portion of the stilling basin) (COE 1999).

The main flow of the river is now concentrated along the east bank, where there is no functioning fish ladder for juvenile fish. Each high water event also deposits gravel bars between the main flow and the existing (1966) fish ladder. Deposition occurring both upstream and downstream of the Dam physically blocks fish movement between the river channel and the ladder on the west bank. Upstream migrating fish naturally follow the strong flows along the east bank to the base of the Dam, where no passage facility exists. While some fish are successful in attempts to jump the Dam, most adults and all juveniles are blocked and either perish below the structure or are delayed until ODFW and Confederated Tribes of the Umatilla Indian Reservation (CTUIR) personnel can begin salvage operations. The endsill is also a barrier to juvenile salmonids, which are unable to jump over the obstruction (COE 1999).

The new vertical slot ladder is designed to improve both adult and juvenile passage. All structural and electrical work inside the walls were fully completed and tested in April 2001. A prefinal inspection occurred on May 7, 2001 with the assistance of NMFS, ODFW, and CTUIR personnel. Modification and repair of sections of the upper spillway crest and the lower endsill crest were deferred from original scheduling in 2000 to be completed during the in-water work window in 2001 (COE 1999).

The primary objective of the proposed action is to complete the construction of the new east bank vertical slot fish ladder begun during the 2000 in-water work window. To complete the ladder, it is necessary to repair the west side crests of both the upper spillway and the lower east spillway to their original elevations. Surface flows would then be concentrated toward the eastside of the channel and into the new vertical slot fish ladder during summer low flows. Work on the upper spillway includes repairing or replacing concrete that eroded from the crest. Work on the lower spillway crest includes repair of erosion to the concrete and the repair of a 3-foot deep notch.

The project also includes the creation of an erodible pushup berm to divert flow away from the construction area and ensure low river flows are directed to the new fish ladder. The berm will start to erode when flows reach 60-80 cubic feet per second (cfs). Other necessary project components include repair of eroding riprap and excavation of fill material from the stilling basin, ladder entrance and exit pools. The fill material will be used to create the erodible berm, as backfill, or used to redirect and stabilize the channel.

The COE, Walla Walla District, estimated that all proposed in-water construction and removal activities will not take longer than the current specified 12 week in-water work period of July 1 – October 31. The COE estimates that the in-water work will require three weeks, with 80% of the work in the dry. All fish stranded within the area would be removed by ODFW and/or CTUIR personnel, by electroshocking or seining.

NOTE: The following proposed sequence (email correspondence, COE, July 18, 2001) of construction activities is included as part of the project details and deviation would require further consultation¹. The COE proposes to:

- a. Install a silt blanket to protect downstream water quality and minimize the release of sediment during in-water work and in near-water work areas.
- b. Install sedimentation monitoring equipment to measure discharge of suspended sediment and insure discharge does not exceed state standards. The COE will cease operations immediately if levels of suspended sediment do exceed State standards and take appropriate action to ensure levels meet or are below state standards before resuming operations.

¹ Email correspondence with Chris Hyland, Project Manager, and Chris Pinney, Engineer, United States Corps of Engineers, Walla Walla District, July 18, 2001.

- c. Establish a channel from the entrance pool to the stream (at 45° angle) and bring to the minus-1 foot level below the lowest notch at the bottom of the dam (requires in-water work).
- d. Conduct a fish salvage operation near the ladder exit before removing debris and fill material from area.
- e. Concurrently dig out the trash rack opening (in-water work) while working in the entrance pool. Eastside Irrigation Ditch may be blocked for up to four hours in order to reduce flow entering action areas.
- f. Open the new fish ladder at this stage to allow flow to the east bank.
- g. Construct an erodible berm, designed to disappear after the next spring's high water event, from the top (downstream) of the dam to west side (upstream) of the river. The berm material will come from lowering portions of a gravel bar. When the berm is nearly complete, the final gap on the west bank will be plugged to divert flow toward the newly sloped gravel bar located on the east bank, near the fish ladder entrance. Note: The fish ladder will be closed beginning when the final berm plug is installed in the west bank channel until silt and gravel flows dissipate as the active low water channel begins moving to the eastside. The purpose of closing the fish ladder is to minimize debris and flushed materials from entering the ladder.
- h. Coordinate a fish rescue (salvage) to occur immediately after completion of berm. The rescue will occur downstream of the berm end connected to the west bank, onto the downstream confluence of present west bank and east bank channels.
- i. Open the ladder once sediment has dissipated (approximately four hours).
- j. Excavate a stilling basin, reinforcing the berm with excavated fill material, or use for backfill, or re-contour west bank (work in the dry).
- k. Repair concrete on the upper and lower spillways (work in the dry).

In conducting analyses of habitat-altering actions under section 7 of the ESA, NMFS uses the following steps: (1) Consider the status and biological requirements of the affected species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. If jeopardy or adverse modification is found, NMFS must identify reasonable and prudent alternatives to the action if they exist (NMFS 1999).

1.3 Biological Information and Critical Habitat

MCR steelhead were listed as threatened under the ESA by the NMFS on March 25, 1999 (64 FR 14517). The MCR steelhead occupies the Columbia River Basin from above the Wind River in Washington and the Hood River in Oregon upstream to Yakima River, Washington. Widespread production of hatchery steelhead occurs, but it is largely based on within-basin stocks. Habitat degradation due to grazing and water diversion are documented throughout the range. (BRT 1999).

The historic presence and current absence of natural coho and chinook salmon populations provides a measure of the degree to which the low elevation anadromous habitat has been degraded in the Walla Walla subbasin. Runs of spring and fall chinook, chum, and coho were reportedly present historically in the Walla Walla River subbasin (Swindell 1942). Fall chinook, chum, and coho were likely only near the mouth of the river and may have been a spillover from large runs in the Columbia River. The only naturally occurring populations of anadromous fish currently present in the Walla Walla subbasin are MCR steelhead. Native spring Chinook, which were last documented in the Walla Walla subbasin in the 1950's and are considered extinct, although strays have been collected and experimental populations reintroduced (CTUIR 1999).

MCR steelhead in the project area are declining. For the Nursery Bridge area, counts of summer steelhead on the Walla Walla River at the dam show a 5-year geometric mean abundance of more than 300 fish (Greer 1998). For comparison, summer steelhead on the Umatilla River passing Three Miles Falls Diversion have averaged more than 900 in number from 1994 to 1998 (Greer 1998). Estimates of total run sizes in the John Day and Touchet Rivers through 1994 were 10,000 and 300 summer steelhead, respectively (StreamNet 1998). Inadequate flows and migration conditions during critical portions of both adult and juvenile migration periods have been the primary contributors to the extirpation of salmon and depression of the native summer steelhead populations in the basin (BPA 1999). Although since the 1992-93 run year, adult escapement to the Oregon portion of the Walla Walla subbasin has been well above the interim viable threshold (ODFW 2001), especially severe declines in escapement numbers have been occurring in the project area. Between 1993 and 1998, summer steelhead decreased by almost 17% per year at the Dam (Greer 1998).

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 CFR 402. NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery.

In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the continued existence of the listed species, NMFS must identify reasonable and prudent alternatives for the action. Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential feature of critical

habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat, it must identify any reasonable and prudent measures available. For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, spawning, and rearing of the listed and proposed species under the existing environmental baseline.

1.4.1 Biological Requirements

The first step the NMFS uses when applying the ESA section 7(a)(2) to listed steelhead is to define the species' biological requirements that are most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing. MCR steelhead survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS 1999). Properly functioning condition is the sustained presence of natural habitat-forming processes in a watershed (e.g., riparian community succession, bedload transport, precipitation runoff pattern, channel migration) that are necessary for the long-term survival of the species through the full range of environmental variation. PFC, then, constitutes the habitat component of a species' biological requirements. The indicators of PFC vary between different landscapes based on unique physiographic and geologic features. For example, aquatic habitats on timberlands in glacial mountain valleys are controlled by natural processes operating at different scales and rates than are habitats on low-elevation coastal rivers (NMFS 1999). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed.

1.4.2 Environmental Baseline

The environmental baseline represents the current basal set of conditions to which the effects of the proposed action are then added. The term “environmental baseline” means the “past and present impacts of all Federal, State or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process” (50 CFR 402.02). The “action area” is defined as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action” (50 CFR 402.02). Physical activities associated with the proposed action, such as constructing the berm, completing the ladder, and trapping and hauling fish from the dewatered section and around the dam. The action area encompasses the Walla Walla River channel surrounding Nursery Bridge Dam, upstream to the edge of disturbance and downstream approximately 300 feet, the immediate area around Nursery Bridge Dam and the dam itself, and the temporary roads leading down to the new fish ladder.

Based on the best available information on fish presence within the Walla Walla River (NMFS 1999), NMFS expects that few adult and some rearing juvenile MCR steelhead would be present in the action area during any of the proposed in-water work periods for the proposed action. All proposed actions would occur within designated MCR steelhead critical habitat (February 16, 2000, 65 FR 7764).

The current baseline reflects drought conditions for the year 2001. Generally, precipitation ranges from about 7-inches along the Columbia River to more than 40-inches at high elevations in the Blue Mountains. For the year 2001, the Walla Walla River Basin is drier than normal. June 2001 flows are ranging around 67 cfs. Mean flows for this time (based on 48 year data) run around 110 cfs with a minimum of 7.3 and a maximum of 450 cfs (USGS 2001). Average temperatures in the basin vary generally with elevation. Annual temperatures at lower elevations average 50° to 55° Fahrenheit (10 to 13° Celsius). Extremes of 115° F (46° C) and minus 21° F (minus 29° C) have been recorded (BPA 1999).

NMFS concludes that not all of the biological requirements of MCR steelhead within the action area are currently being met under the environmental baseline. MFS also recognizes that baseline environmental conditions in the action area are not properly functioning.

The current population status and trends for MCR steelhead are described in Busby et al. (1996) and in NMFS (1997). In general, the current status of MCR steelhead populations is the result of several long-term, human-induced factors (e.g., habitat degradation, water diversions, hydropower dams) that serve to exacerbate the adverse effects of natural environmental variability from such factors as drought, floods, and poor ocean conditions.

Critical habitat for MCR steelhead was designated on February 16, 2000 (65 FR 7764) and includes all accessible river reaches, except on Indian lands. Designated freshwater critical habitat for MCR steelhead consists of major Columbia River tributaries including the Walla Walla, Deschutes, John Day, Klickitat, Umatilla, and Yakima Rivers. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas located below long withstanding, natural impassable barriers (e.g., natural waterfalls in existence for at least several hundred

years). Critical habitat provides the following functions: shade, sediment, nutrient or chemical regulation, streambank regulation, input of coarse woody debris (especially of large size) or other organic matter.

The Walla Walla subbasin is one of many subbasins included within the Columbia Plateau province. About 27% of the entire drainage lies in the Oregon portion of the Walla Walla subbasin, where the City of Milton-Freewater has the largest population center. Land use ranges from irrigated orchards and alfalfa along streams to dryland wheat farming at low to mid elevations. Logging, livestock grazing and recreation are the dominant land uses in high elevation forestlands. Large scale irrigated agriculture has been a significant portion of the economy in this subbasin since the 1860's to 1880's. The area has large deposits of fertile soils, but precipitation is sparse during the growing season making irrigation necessary for crop production. The Walla Walla River from the City of Milton-Freewater (at the source of the Little Walla Walla River) to just north of the state line (approximately six miles downstream) has historically been dewatered during the summer months because of irrigation withdrawals since about 1880 (Walla Walla Subbasin Summary 2001).

1.5 Analysis of Effects

1.5.1 Effects of Proposed Actions

Direct effects are the direct or immediate effects of the project on the species or its habitat. Direct effects result from the agency action including the effects of interrelated actions and interdependent actions. Direct effects can occur in the action area and can extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, mortality resulting from construction and/or excavation, and the extent of riparian habitat modifications. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not considered in this Opinion.

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects can occur outside the area directly affected by the action. Indirect effects may occur throughout the watershed where actions described lead to additional activities or affect ecological functions contributing to stream degradation or loss of fish productivity.

The new vertical slot fish ladder will benefit MCR steelhead by providing access to a habitat upstream of the Dam. By concentrating flow into the east side of the river channel (east bank) and completing the fish passage project, the following long-term benefits for steelhead are expected:

- Survival and recovery of adult and juvenile MCR steelhead will be improved by reducing the chances of an annual dewatering along the east bank.
- Juvenile MCR steelhead will be able to pass through the dam using a fish ladder instead of requiring salvage operations to transport them (less stress, injury, mortality).

- Passage will be easier for all ages of MCR steelhead.
- Channel flow along the east bank will be improved by redirecting the thalweg in a natural direction.
- Water depth will increase along the east bank, allowing for cover from predators.
- Temperature will decrease in the east bank channel during lower flows.
- Survival of benthic invertebrate communities will improve during lower flows in the east bank.
- As flow increases, build up of sediment decreases.
- Instream habitat elements will be maintained along the east bank.
- More accurate annual fish counts will be possible at the Dam.

Direct effects are expected to result from the interrelated salvage operations, which are necessary to decrease overall MCR steelhead mortality. In this case, the COE is requesting an Incidental Take Permit.

In the short term, temporary direct effects include the following:

- Increases of sediment and turbidity once the action area is submerged by high water after completion of project work may increase water temperature and decrease oxygen content of water (water quality);
- Injury, mortality, and increased stress on fish may result from the salvage operation, which includes electroshocking and transportation.
- MCR steelhead juvenile mortality and harassment is expected to result from in-water construction actions.
- Disturbance of riparian habitat resulting from dewatering may increase predation of MCR steelhead not relocated by salvage operations (loss of cover).

Indirect effects include the following:

- Sediment discharge in fall of 2001, as the river flow increases and the proposed pushup berm erodes, which may temporarily increase water temperature and decrease oxygen content of water (water quality).

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage.

The existing channel downstream of the dam provides poor habitat for juveniles in the summer because of extensive irrigation water withdrawals upstream. In the analysis of how this project will affect critical habitat, a combination of short-term effects and long-term benefits are expected from this project. Not all are quantifiable. They are as follows:

- Predation may increase slightly because of losses in riparian vegetation due to project work. The loss of vegetation increases visibility of juveniles trying to hide from predators.
- Short-term disturbance of vegetation along the northwest bank will occur. In the long-term, east bank vegetation and riparian habitat will improve (where channel will be entrained during low water period).
- Short-term increases in turbidity and sedimentation will result from the erodible berm. In the long term, increased stability of the site will reduce sedimentation.
- Short-term reduction in benthic invertebrate populations because of dewatering, equipment caused turbidity and compaction, and a seasonal reduction of benthic invertebrate populations in the west bank will occur. Impacts may be felt in the east bank, as competition increases for food for 4-6 months following construction.
- Short-term and long-term increases in water temperature and possible damage (stress, mortality) to functional habitat components will result from any temporary or permanent dewatering associated with this project.

Water quality and quantity are presently a limiting habitat element in the action area, specifically temperature. In the longterm, dewatering of the eastside channel will end and the thalweg will be rerouted to enhance function of a new fish ladder.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” For the purposes of this analysis, the action area (described in 1.4.3) is the Dam area, at RM 51.9, and immediate vicinity, upstream to the edge of disturbance and downstream approximately 300 feet from the project and the temporary fish ladder access roads. Other activities within the watershed have the potential to affect fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities will be reviewed through separate section 7 consultation processes.

The extensive dewatering caused by irrigation is a factor for the decline of MCR steelhead in the Nursery Bridge Dam area, located within the “Tumalum Branch” of the Walla Walla River. Before the summer of 2000, two diversion dams in the City of Milton-Freewater, Oregon, removed all the flow from the mainstem Walla Walla River from about June 1 through September 30. This dewatered the “Tumalum Branch” for a distance of 2.5 to 5 miles. The CTUIR and ODFW have conducted several fish rescue operations as flows begin to diminish in this reach. The year 2000 rescue efforts (a cooperative of CTUIR, ODFW, and Walla Walla River Irrigators) recovered an estimated 3,500 juvenile rainbow trout/steelhead and 15 bull trout juveniles from this stretch. Juvenile rainbow/steelhead rescued in April through June were suspected to be out migrating smolts and were released below the dewatered reach, while juvenile rainbow/steelhead captured later in the year are assumed to be rearing. Rearing fish are released above the dewatered reach where flow conditions are more favorable (Washington State Conservation Commission 2001).

During the year 2000 salvage operation, approximately 50 persons worked to help net and move fish below the dewatered reach using buckets and transportation trucks. The large number of volunteers allowed for a higher accuracy in overall fish species identification and enumeration, and lower mortality than previous years. In all, 3,887 fish were transported, of which 3,265 fish reportedly survived the salvage operation. Of the 3,265 that survived, 2,759 (85%) were rainbow/steelhead trout². A difference in MCR steelhead mortality rates between ODFW transport vehicles and non-ODFW transport vehicles was noted.

1.6 Conclusion

NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS believes that the proposed action would cause a minor, short-term degradation of anadromous salmonid habitat due to turbidity caused by in-water excavation of stream substrates and dewatering. Although direct mortality from this project is expected and could occur during the in-water work and the salvage operations, the level of any mortality would be minimal and would not result in jeopardy.

NMFS has determined that, when the effects of the fish passage project addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, it is not likely to jeopardize the continued existence of MCR steelhead. Additionally, NMFS concludes that the subject action would not cause adverse modification or destruction of designated critical habitat for MCR steelhead. NMFS believes that the proposed action would cause a minor and short-term degradation of anadromous salmonid habitat due to the temporary loss of riparian habitat from dewatering and sediment impacts from construction. Although direct mortality from this project could result from in-water work, and from fish rescue operations, the expected level of mortality should be minimal because of conservation measures included in the proposed action, including the following:

- All in-water work will be completed during ODFW's preferred in-water work period of July 16 - October 31;
- the project will proceed according to the project details outlined in Section 1.2.1; and
- over the long term, this project is expected to promote attainment of relevant PFC indicators at the watershed scale.

1.7 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is

² Telephone interview with J. Giordana, Office of Law Enforcement, National Marine Fisheries Service (July 9, 2001) (discussing fish salvage in the Tumalum Branch, 2000).

modified in a way that causes an effect on listed species that was not previously considered; or, (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinstate consultation, the COE should contact the National Marine Fisheries Service, Oregon Habitat Branch at: 525 NE Oregon Street, Portland, OR. 97232-2778 and reference OSB2001-0137.

2. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of MCR steelhead without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns that include, but are not limited to, breeding, feeding, and sheltering. Incidental take is a take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NMFS anticipates that the proposed action has more than a negligible likelihood of resulting in incidental take of species listed in this Opinion because of detrimental effects from increased sediment and pollutant levels (non-lethal), reduced benthic invertebrate production (non-lethal), riparian habitat disturbance (non-lethal), and the capture and release of any juvenile fish necessary to isolate the in-water work area (lethal and non-lethal).

Effects of actions such as minor sedimentation and minor riparian disturbance are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the construction actions other than isolating the work area covered by this Opinion, best scientific and commercial data available are not sufficient to enable NMFS to estimate the specific amount of incidental take to the species itself. In instances such as these, NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian

habitats affected by the ladder construction, extending upstream to the edge of disturbance, and downstream 300 feet.

Unlike general habitat effects, the effects of isolating the work area from the flowing waters of the Walla Walla River could result in minor incidental lethal take of MCR steelhead that can be quantified based on the results of past salvage operations involving ODFW. NMFS anticipates that an incidental take of up to 30 juvenile MCR steelhead could occur as a result of isolating the work area as described in this Opinion. The extent of take is limited to MCR steelhead in the Walla Walla River.

2.2 Effects of the Take

In this Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead or to destroy or adversely modify designated critical habitat for MCR steelhead when the reasonable and prudent measures are implemented.

2.3 Reasonable and Prudent Measures

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of MCR steelhead from the actions covered in this Opinion. The COE shall:

1. Minimize the likelihood of incidental take from completing construction of the fish ladder, modification of the upper spillway and lower endsill crests, and temporary in-channel substrate shaping by avoiding or minimizing adverse impacts to aquatic and riparian systems.
2. Minimize the likelihood of incidental take from fish salvage by following NMFS guidelines to avoid or minimize fish injury and mortality.
3. Ensure that measures to minimize the likelihood of take are effective through comprehensive monitoring and reporting.

2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must comply with the following terms and conditions, that implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (construction) above, the COE shall ensure that:
 - a. Project design. The following overall project design conditions are met.
 - i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project. As much work as possible

- proposed for below the ordinary high water line will be completed during low flow periods and in the dry, including excavation of the stilling basin.
- ii. In-water work. All work within the active channel will be completed within the ODFW approved in-water work period for this area, July 1 through October 31. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.
 - iii. In-channel substrate shaping. The diversion berm to be constructed in the river channel will be designed to erode away completely during high stream flows beginning this fall. The berm will be limited to the minimum size necessary and primarily constructed from portions of a gravel bar removed to provide access to entrance pools for the fish ladder.
- b. Completion of the fish ladder and modification of upper spillway and lower endsill crests. All work on the ladder will be completed as follows.
- i. Isolation of in-water work area. The work area will be well isolated from the active flowing stream to minimize the potential for sediment entrainment and sediment levels will be monitored to ensure compliance with state water quality standards. All project operations, except efforts to minimize sedimentation, will cease if sediment levels exceed state water quality standards.
 - ii. Fish screen. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained according to NMFS' fish screen criteria³. Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow prior to returning to the creek. Discharge will occur in such a manner as not to cause erosion.
 - iii. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
 - (1) Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
 - (2) Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
 - (3) A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.

³ National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) <http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm>.

- (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
 - (5) Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- c. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.
 - i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. The following erosion control materials are onsite:
 - (1) A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
 - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
 - iii. All temporary erosion controls (e.g., straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.
- d. Heavy Equipment. Heavy equipment use will be restricted as follows.
 - i. When heavy equipment is required, the applicant will use equipment having the least impact (e.g., minimally sized, rubber tired).
 - ii. Heavy equipment will be fueled, maintained and stored as follows.
 - (1) All equipment that is used for instream work will be cleaned prior to operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
 - (2) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream.
 - (3) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
 - (4) When not in use, vehicles will be stored in the vehicle staging area.
- e. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.

- i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
 - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation prior to October 1, 2001. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
 - iii. Disturbed areas will be planted with native vegetation specific to the action area, and will comprise a diverse assemblage of woody and herbaceous species.
 - iv. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
 - v. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
 - vi. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
2. To implement Reasonable and Prudent Measure #2 (fish salvage) above, the COE shall ensure that attempts will be made to capture and release fish from the work isolation area before opening the ladder exit and trash rack area for removal of debris and sediment, again when the ladder is closed for final closure of the berm, and at any other time as is prudent to minimize risk of injury.
- a. If possible, fish will be captured by seining under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
 - b. If seining is not possible, fish may be captured using electrofishing gear as described in NMFS guidelines (NMFS 2000). No electrofishing may occur if water temperatures exceed 18° C, or are expected to rise above this temperature before concluding the capture.
 - c. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during capture and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
 - d. No fin clipping or use of anaesthetics is authorized for MCR steelhead.
 - e. Captured fish must be released in appropriate habitat, as near as possible but upstream of the capture site.
 - f. Only ODFW vehicles will be used to transport MCR steelhead to the release site.
 - g. The transfer of any ESA-listed fish from the applicant to third-parties other than NMFS personnel requires written approval from the NMFS.

- h. The applicant must obtain any other Federal, state, and local permits and authorizations necessary for the conduct of the capture activities.
 - i. The applicant must allow the NMFS or its designated representative to accompany field personnel during the capture activity, and allow such representative to inspect the applicant's capture records and facilities.
 - j. A description of the capture and release effort will be included in the post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and after placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.
3. To implement Reasonable and Prudent Measure #3 (monitoring) above, the COE shall submit a monitoring report to NMFS describing the COE's success meeting their permit conditions. This report will consist of the following information.
- a. Project identification.
 - i. Permit number;
 - ii. project name;
 - iii. starting and ending dates for work performed under the permit; and
 - iv. the COE contact person.
 - b. Isolation of in-water work area.
 - i. The name and address of the supervisory fish biologist;
 - ii. methods used to isolate the work area and minimize disturbances to ESA-listed species;
 - iii. stream conditions prior to and following placement and removal of barriers;
 - iv. the means of fish removal;
 - v. the number of fish removed by species;
 - vi. the location and condition of all fish released; and
 - vii. any incidence of observed injury or mortality.
 - c. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
 - d. Site restoration. Documentation of the following conditions:
 - i. Finished grade slopes and elevations.
 - ii. Log and rock structure elevations, orientation, and anchoring, if any.
 - iii. Planting composition and density.
 - iv. A plan to inspect and, if necessary, replace failed plantings and structures for a period of five years.
 - e. A narrative assessment of the project's effects on natural stream function.
 - f. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.

- i. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
- ii. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
- iii. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

NOTICE. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death.

In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

- g. Monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: OSB2001-0137
525 NE Oregon Street, Suite 500
Portland, OR 97232-2778

3. MAGNUSON-STEVENSON ACT

3.1 Background

The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. The MSA requires Federal agencies to consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (MSA §305(b)(2)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10).

Section 305(b) of the MSA (16 U.S.C. 1855[b]) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall provide a detailed response in writing to NMFS regarding the conservation recommendations within 30 days after receiving the conservation recommendations from NMFS. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its locations.

3.3 Identification of Freshwater Essential Fish Habitat

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands and other water bodies currently, or historically accessible to salmon in

Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally impassable barriers (i.e., waterfalls in existence for several hundred years) (PFMC 1999). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed above in Section 1.2. The action area includes the Walla Walla River channel surrounding Nursery Bridge Dam, including the immediate area around Nursery Bridge and the dam itself, the road between both the fish ladders and the trap, and the temporary roads leading down to the new fish ladder. The area has been designated as EFH for various life stages of chinook salmon (*O. tshawytscha*).

3.5 Effects of Proposed Actions

As described in detail in Section 1.5, the proposed activity may result in a short-term increase in sediment and turbidity levels, and disturb the stream substrate, that may decrease water quality. There may also be short-term decreases in the functional quality and quantity of riparian habitat due to dewatering during the in-water work period (July 1 - October 31). This may result in increased predation and, therefore, an increase in predator avoidance. A reduction of riparian vegetation would also contribute to the already high water temperatures in the area.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures that the COE has built into the project and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.3 and 2.4 are applicable to salmon EFH. Therefore, NMFS incorporates each of these measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendations.

3.9 Consultation Renewal

The COE must reinitiate EFH consultation with NMFS if the proposed project is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

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